

Remarks

Claims 1-20 are currently pending. Claims 1 and 12 have been amended.

In the specification, the paragraphs [1013] and [1018] have been amended to correct minor editorial problems.

The examiner has acknowledged that claims 9-11 are directed to allowable subject matter.

Reconsideration of this application in light of the above amendments and the following remarks is requested.

I. Rejections under 35 U.S.C. §102

Claim 1

Claim 1 recites the following:

1. An apparatus, comprising:
a transmitter configured to send a transmitter signal associated with a frequency;
a receiver associated with the frequency;
an antenna coupled to the transmitter and the receiver; and
a signal cancellation circuit coupled to the transmitter, the receiver and the antenna, the signal cancellation circuit configured to phase shift by substantially 180 degrees a first portion of the transmitter signal that does not include a reception signal to produce a phase-shifted signal, the signal cancellation circuit configured to combine the phase-shifted signal with a second portion of the transmitter signal to produce a combined signal, the second portion of the transmitter signal being associated with a reflection of a third portion of the transmitter signal from the antenna, the first portion, the second portion and the third portion of the transmitter signal being different from each other.

Claims 1 was rejected under 35 U.S.C. §102(a) as allegedly being anticipated by U.S. Patent No. 6,567,648 to Ahn et al. (“Ahn”).

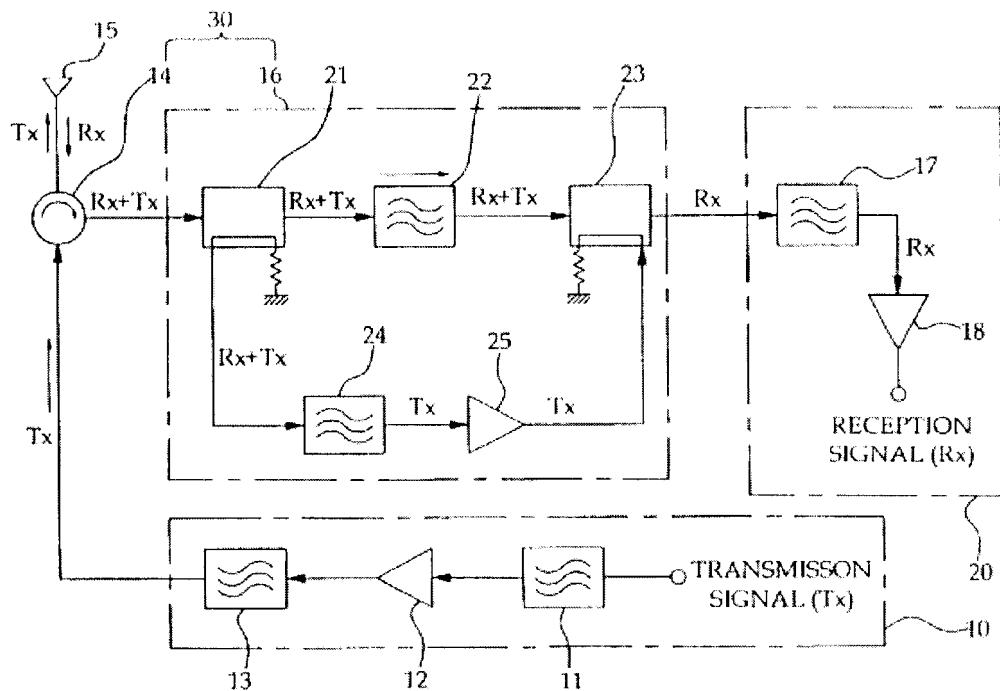
The PTO provides in MPEP § 2131 that
“[t]o anticipate a claim, the reference must teach every element of the claim....”

Therefore, with respect to claim 1, to sustain this rejection the Ahn patent must contain all of the above claimed elements of the claim. However, contrary to the Examiner’s position

that all elements are disclosed in the Ahn reference, Ahn does not disclose a cancellation circuit configured to **phase shift by substantially 180 degrees** a first portion of the transmitter signal **that does not include a reception signal** to produce a phase-shifted signal that is combined with a second portion of the transmitter signal to produce a combined signal.

With regard to the claim 1 limitation of a cancellation circuit configured to **phase shift by substantially 180 degrees** a first portion of the transmitter signal **that does not include a reception signal** to produce a phase-shifted signal that is combined with a second portion of the transmitter signal to produce a combined signal, the Examiner alleges Ahn discloses such an apparatus. Applicants respectfully disagree. For example, Figure 3 of Ahn shows the following:

FIG. 3



As shown, the canceller (16) of Ahn receives a signal comprising a transmission signal (TX) component and a reception signal (RX) component. With regard to the input to the canceller and the phase shifting of the signal supplied thereto, Ahn states the following:

[T]he feeble reception signal Rx and the approximately 20 dB attenuated high power transmission signal Tx are input to the receiver 20 via the circulator 14.

In the present invention, the first coupler 21 **branches a portion of a transmission/reception signal (Tx+Rx)** input to the receiver 20, that is, an approximately 30 dB attenuated signal and **phase-delays the branched signal by 90°**. The first variable band rejection filter 24 rejects the reception signal Rx and passes only the transmission signal Tx with respect to the low power transmission/reception signal (Tx+Rx) which is branched and 90° phase delayed via the first coupler 21. Then, the signal amplifier 25 amplifies the transmission signal Tx from the first variable band rejection filter 24 into the same magnitude as that of the unbranched transmission signal Tx, and transfers the amplified result to the second coupler 23. The **output signal Tx of the signal amplifier 25** is combined to the second coupler 23, **is secondarily phase delayed by 90°** with a result that a 180° phase delay occurs in whole.

Ahn, Column 7, Lines 18-37 (**Emphasis Added**).

Thus, as clearly shown and described by Ahn, a transmission/reception signal is first phase delayed by 90° and the reception signal portion is subsequently filtered. The remaining transmission signal is then phase delayed another 90°. Accordingly, Ahn clearly fails to describe or suggest a cancellation circuit configured to **phase shift by substantially 180 degrees** a first portion of the transmitter signal **that does not include a reception signal** to produce a phase-shifted signal that is combined with a second portion of the transmitter signal to produce a combined signal. Advantageously, the cancellation circuit of the subject invention does not require reception signal filtering for implementing the transmission signal cancellation. For at least this reason, Ahn is insufficient to anticipate claim 1, and withdrawal of the rejection of claim 1 under 35 U.S.C. §102(a) in view of Ahn is requested.

Claim 12

Claim 12 recites the following:

12. An apparatus, comprising:
a first coupler configured to receive a first portion of a transmitter signal that does not include a receiver signal, the transmitter signal being associated with a frequency;
a circuit coupled to the first coupler, the circuit configured to modify a phase of the transmitter signal to produce a modified signal; and
a second coupler coupled to the circuit, the second coupler configured to combine the modified signal and a second portion of the transmitter signal to produce a combined

signal, the second portion of the transmitter signal being associated with a reflection of the transmitter signal from an antenna, the second coupler configured to send the combined signal to a receiver associated with the frequency and coupled to the antenna.

Claim 12 was rejected under 35 U.S.C. § 102(a) as allegedly being anticipated by Ahn. However, contrary to the examiner's position that all elements are disclosed in the Ahn reference, Ahn does not disclose an apparatus including "a first coupler configured to receive a first portion of a transmitter signal **that does not include a receiver signal.**"

With regard to the claim 1 limitation of "a first coupler configured to receive a first portion of a transmitter signal that does not include a receiver signal, the transmitter signal being associated with a frequency," Applicants note the coupler (21) described by Ahn receives a transmission/reception signal as discussed above with regard to the rejection of claim 1. Accordingly, for at least this reason, Ahn is insufficient to anticipate claim 12, and withdrawal of the rejection of claim 12 under 35 U.S.C. §102(a) in view of Ahn is respectfully requested.

Claim 7

Claim 7 recites the following:

7. A method, comprising:
phase shifting a first portion of a transmitter signal to produce a phase-shifted signal, the transmitter signal being associated with a frequency; and
combining the phase-shifted signal with a second portion of the transmitter signal to produce a reduced signal, the second portion of the transmitter signal being associated with a reflection of the transmitter signal from an antenna, the antenna being coupled to a homodyne transceiver.

Claim 7 was rejected under 35 U.S.C. 102(e) as allegedly being anticipated by U.S. Patent No. 6,686,830 to Schirtzer ("Schirtzer").

Therefore, with respect to claim 7, to sustain this rejection the Schirtzer patent must contain all of the above claimed elements of the claim. However, contrary to the Examiner's position that all elements are disclosed in the Schirtzer reference, Schirtzer does not disclose a method of combining the phase-shifted signal with **a second portion of the transmitter signal** to produce a reduced signal, **the second portion of the transmitter signal being associated with a reflection of the transmitter signal from an antenna.**

With regard to the claim 7 limitation of “combining the phase-shifted signal with a second portion of the transmitter signal to produce a reduced signal, the second portion of the transmitter signal being associated with a reflection of the transmitter signal from an antenna, the antenna being coupled to a homodyne transceiver,” the Examiner cites various passages (Column 1, Lines 50-67; Column 3, lines 44-55, and Column 6, Lines 14-41) of Schirtzer as allegedly disclosing such a method. Applicants respectfully disagree.

With regard to Column 1, Lines 50-67 of Schirtzer, Schirtzer generally describes passive tag back-scattering and homodyne receivers adapted to operate with such tags. Here, Schirtzer does not describe, suggest, or otherwise allude to a method of “combining the phase-shifted signal with a second portion of the transmitter signal to produce a reduced signal, the second portion of the transmitter signal being associated with a reflection of the transmitter signal from an antenna, the antenna being coupled to a homodyne transceiver.”

With regard to Column 3, Lines 44-55, Schirtzer states the following:

It is a still further object of the invention to provide an improved, compact homodyne transceiver, which may interactively alter the contents of an RFID tag.

It is yet another object of the invention to provide an improved, compact homodyne receiver, which utilizes a lumped network to reduce size and improve reader performance and efficiency.

It is an additional object of the invention to provide an improved, compact homodyne receiver which may use I/Q outputs to help accurately distinguish between closely-spaced articles.

Schirtzer, Column 3, Lines 44-55.

Here, Schirtzer generally describes a homodyne transceiver operable with RFID tags and which may process in-phase (I) and quadrature (Q) outputs. Schirtzer in no manner describes or suggests a method of “combining the phase-shifted signal with a second portion of the transmitter signal to produce a reduced signal, **the second portion** of the transmitter signal being **associated with a reflection of the transmitter signal from an antenna**, the antenna being coupled to a homodyne transceiver.”

With regard to Column 6, Lines 14-41, Schirtzer generally describes reception of an RF transmitter wave at lumped network sections (142a-142c), and receipt of a back-scattered signal (from an RFID tag) at the lumped network sections. Neither the transmitter signal nor tag back-

scatter is associated with any reflection of a transmitter signal from an antenna. Accordingly, Schirtzer in no manner describes or suggests a method of “combining the phase-shifted signal with a second portion of the transmitter signal to produce a reduced signal, the second portion of the transmitter signal being **associated with a reflection of the transmitter signal from an antenna**, the antenna being coupled to a homodyne transceiver.”

Accordingly, Schirtzer is thoroughly deficient to anticipate claim 7, and withdrawal of the rejection of claim 7 under 35 U.S.C. §102(e) in view of Schirtzer is requested.

II. Allowable Subject Matter

Applicants note with appreciation the Examiner’s indication of allowability of claims 9-11.

Serial No.: 10/804,198
In Reply to Office Action of June 29, 2006

Docket No. 35485.58
Customer No.: 27683

III. Conclusion

It is clear from all of the foregoing that independent claims 1, 7, and 12 are in condition for allowance. Dependent claims 2-6, 8-11, and 13-20 depend from and further limit independent claims 1, 7, and 12 and therefore are allowable as well.

An early formal notice of allowance of claims 1-20 is requested.

Respectfully submitted,



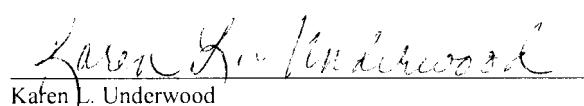
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Dated: 29 September 2006

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R147275

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